

1 CLAIMS

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3 What is claimed is:

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5 1. An adaptive learning system for presenting an appropriate topic and question
6 to a user, said system comprising:

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8 a processor configured to:

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10 generate and store in a database a set of hierarchical topics having a plurality of
11 questions associated with each one of said topics; each of said plurality of
12 questions within a topic having an assigned difficulty level value;

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14 determine an adjustable state level value for a user based on said user's topic
15 performance consistency; said state level initialized to and having a range of
16 predetermined value;

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18 determine an adjustable water level value for said user based on said user's
19 proficiency in at least a subset of said hierarchical topics; said water level
20 initialized to and having a range of predetermined value;

- 1 determine a relevant topic for said user from said set of hierarchical topics by
- 2 performing the following:
- 3
- 4 cull said set of hierarchical topics to determine one or more eligible
- 5 academic topics; and
- 6
- 7 evaluate for relevance said one or more eligible academic topics using
- 8 heuristic relevance ranking to determine said relevant academic topic;
- 9
- 10 determine an appropriate question for said user from said plurality of relevant
- 11 academic topic questions by performing the following:
- 12
- 13 determine said user's water level,
- 14
- 15 search said database for one or more questions within a threshold range
- 16 from said user's water level,
- 17
- 18 randomly select a relevant question from this one or more questions
- 19
- 20 depending on the user's answer to said selected question, adjust said user's
- 21 water level according to a predetermined adjustment table.

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2 2. The system as in claim 1 wherein said processor is further configured to
3 evaluate for relevance said one or more eligible academic topics using at least
4 one of a Average Level Relavance heuristic, Eligibility Relevance heuristic,
5 Static Multiplier Relevance heuristic, Contribution Relevance heuristic,
6 Learning Dimension Repetition Relevance heuristic, Failure Relevance
7 heuristic and Re-recommend Failure Relevance heuristic.

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9 3. The system as in claim 1 wherein said processor further defines a multiplier
10 value m , said state level value is initialized to 3 and ranging from 1 to 6, said
11 water level value is initialized to 25 and ranging from 0 to 100 and said
12 predetermined adjustment table comprises:

State Level that said user is currently in:	Adjustment in water level when a question is answered correctly:	Adjustment of water level when a question is answered incorrectly:
1	+0m	-5m
2	+1m	-3m
3	+1m	-2m
4	+2m	-1m
5	+3m	-1m
6	+5m	-0m

m = Multiplier

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1 4. The system as in claim 1 wherein said difficulty level value ranges from 1 to
2 100;

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4 5. The system as in claim 1 wherein said threshold range is from ± 0 to ± 5 .

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6 6. The system as in claim 1 wherein said threshold range is greater than ± 5 .

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